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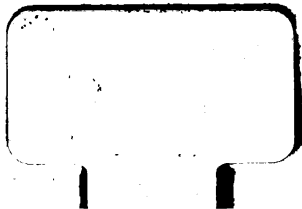
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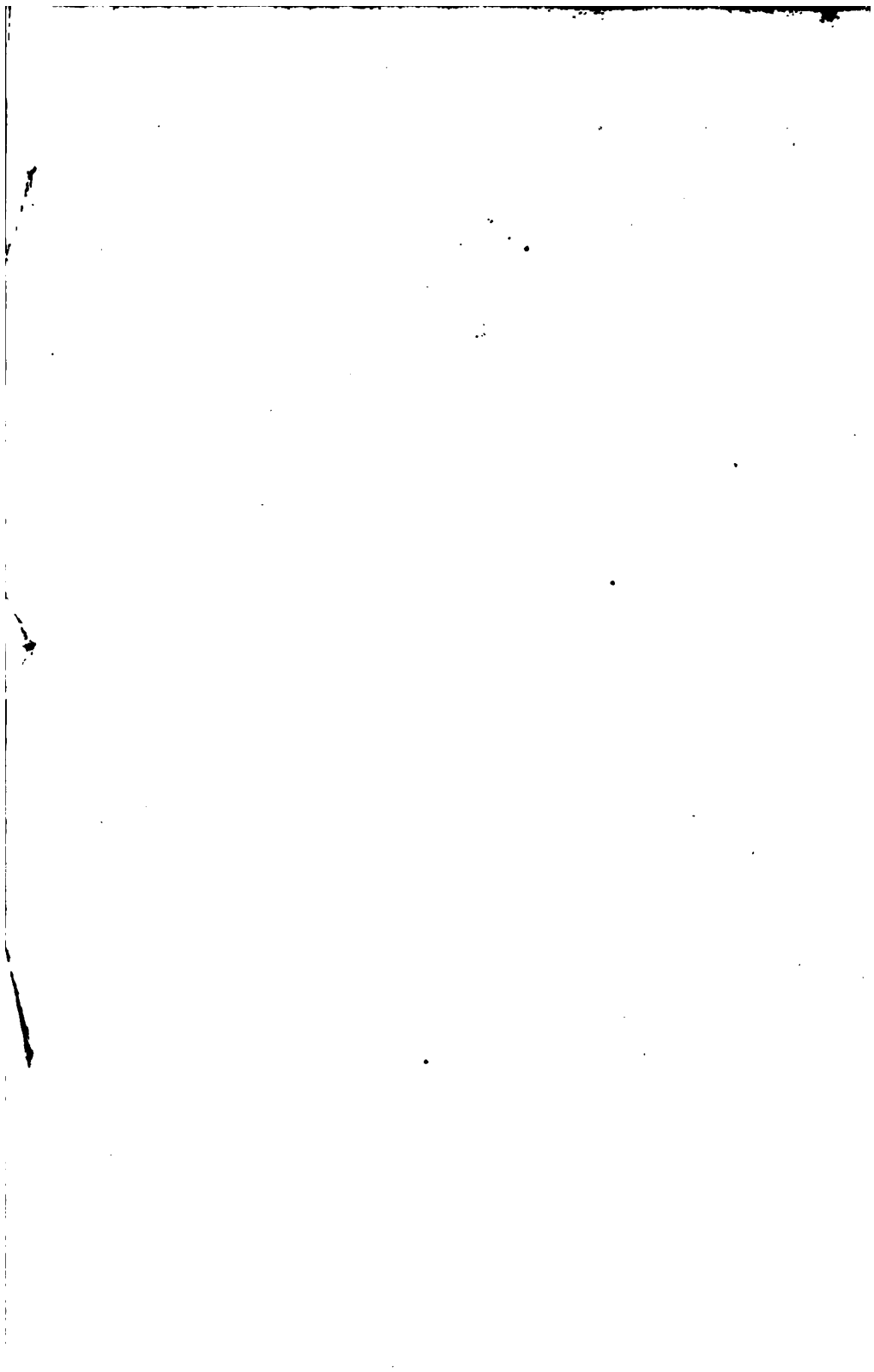
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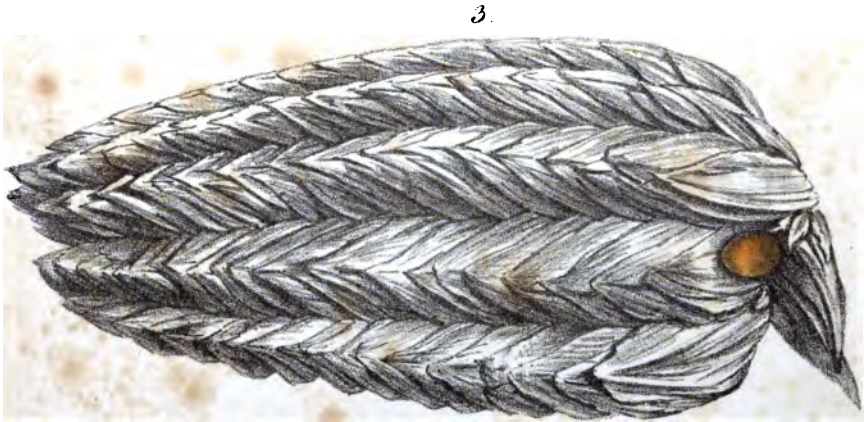
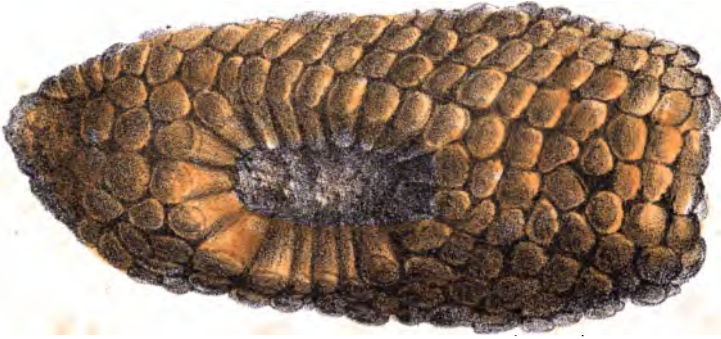
Browne  
1837.

37.

633.







*Lehman & Duval Lith<sup>rs</sup>*

AN

ESSAY

ON

INDIAN CORN.

BY

*39*  
**PETER A. BROWNE, L.L.D.**

PROFESSOR OF GEOLOGY AND MINERALOGY IN LAFAYETTE COLLEGE, EASTON, PA.  
— PROFESSOR OF GEOLOGY IN THE CABINET OF NATURAL SCIENCE IN MONT-  
GOMERY COUNTY; MEMBER OF THE GEOLOGICAL SOCIETY OF  
PENNSYLVANIA; AND CORRESPONDING MEMBER  
OF THE CABINET OF NATURAL SCIENCE  
OF CHESTER COUNTY.

---

READ BEFORE THE CHESTER COUNTY CABINET OF NATURAL SCIENCE,  
APRIL 22, 1837.

AND PUBLISHED BY ORDER OF THE CABINET.

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“Ducit amor patriæ.”

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Philadelphia:

PRINTED BY J. THOMPSON, S. E. COR. SECOND & MARKET ST.

1837.

633.



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To PETER A. BROWNE, Esq.

DEAR SIR,

On behalf of the Chester County Cabinet of Natural Science, we beg leave to tender you our thanks for the interesting, valuable and instructive Essay upon Indian Corn, read by you before our Institution, and request a copy for publication.

This essay should command the attention not only of the naturalist and the agriculturalist, but of the *political economist*, and we shall be happy to have the opportunity to be instrumental in giving it extensive circulation.

With assurances of personal regard,

We are very respectfully,

Your friends,

DAVID TOWNSEND,

JESSE W. COOK,

W. P. TOWNSEND,

Committee.

West Chester, April 27th, 1837.

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To DAVID TOWNSEND,  
JESSE W. COOK, and  
W. P. TOWNSEND, Esq's.

GENTLEMEN,

I have been duly favoured with yours of the 27th of this instant, requesting for publication a copy of my essay upon Indian Corn. Although I cannot entirely agree with you as to the high estimate you place upon this little production, yet hoping that it may contain some things that may benefit the country, I with pleasure comply with your request.

With assurances of personal regard,

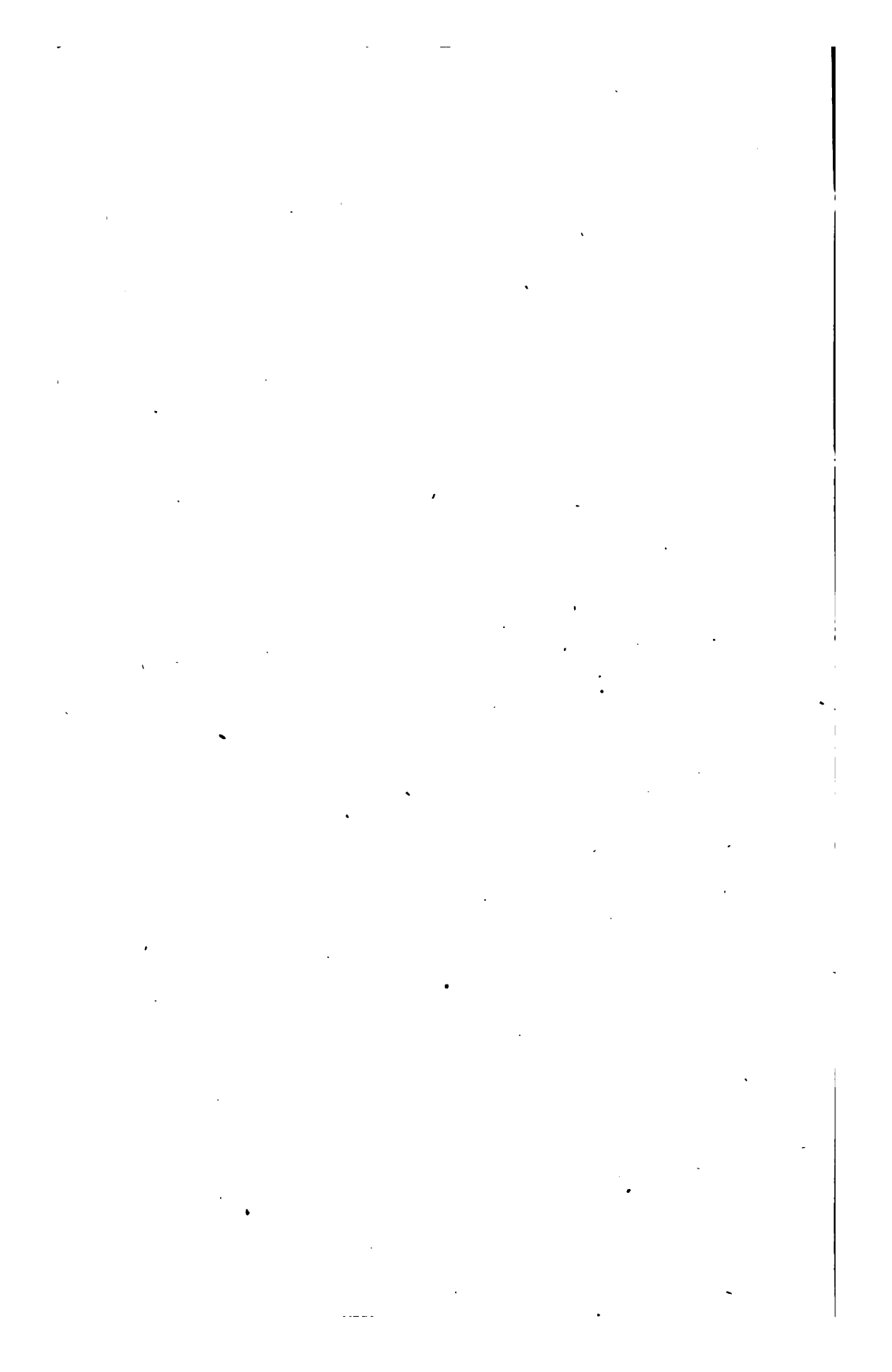
I am very respectfully your friend,

And ob't ser'vt.

P. A. BROWNE.

Philadelphia, April 29th, 1837.





## AN ESSAY ON INDIAN CORN.

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**ZEa** MAYS. "Maize" or "Mais." "Indian Corn" or "Indian Wheat." "Blé ou Bled de Turquie ou d'Inde" (French.) "West India Corn" (Spanish) "Lenehâsquem" (Lenni Lennape) "Melomin" (Chipeway.)\*

The word "Zea" is borrowed from the ancient Greek word "Zao," "to live," the seeds contributing eminently to the support of life.† It is rendered in Latin "triticum," (wheat,) and "hordium," (barley,) from which it is inferred, that in its original it meant "*grain*" only. In like manner in English the word "corn," which is derived from the Saxon "corn," and the German "Korn," includes "*all* seeds that grow on *ears*, and not in *pods*, and that are made into bread." "Corn," in political economy and commerce, is synonymous with "bread stuffs." All the British statutes regarding *grain*, are called "*corn laws*." The words blé and bled in the French, and the word "Trigo" in the Spanish language, correspond with the word "Zea," as thus explained. Blé was also the Norman name for corn.‡

The class Zea is divided into two orders. 1st. Zea mays. 2d. Zea curagua.§

The Zea belongs to the 19th class of plants called Monœcia (one house,) because the plants of this class have imperfect flowers, the stamens and pistils growing on the *same* plant, but on separate corollas.

The *orders* of this class are determined by the numbers of styles and pistils. The Zea mays belongs to the 3rd order "Triandria," three stamens.

In the natural orders it is arranged under the 4th "Gramina;" family "Cerealia," Cerealis, any grain from which bread is made, from "Cereâ," the goddess of corn.

In books of horticulture it is ranged under "culmiferous crops."

Some writers call the Zea mays a "gigantic grass." Col. Taylor of Virginia, speaking of deep ploughing, calls it "a little tree."

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\* Note A at the end.

† Kelham's Norman Dictionary.

‡ Darlington.

§ Reese's Cyclopædia.

It is generally ranked as the third grain, in point of utility, by European writers; they placing before it, rice and wheat; but in the United States it takes precedence of all other grains.

I propose to treat of this valuable plant under the following heads, viz:

I. To what country did it originally belong? Is it a native of America?

II. Where is it now cultivated?

III. How much is raised in the United States?

IV. Of the varieties of Indian Corn.

V. Which kind is to be preferred?

VI. The capacity it has of retaining its germinating power?

VII. The methods of cultivating it.

VIII. Is the Indian corn capable of being improved by culture?

IX. It's cultivation compared with other grains.

X. The different uses to which it is applied.

I. To what country is the world indebted for this valuable plant?

Is it a native of America?

I state the above as two distinct questions, for it might be that the Indian corn was indigenous to different countries. But it was no apprehension that the Indian corn had been a native of any other part of the world that induced me to make the suggestion.

Not to trouble the reader with the numerous other writers who have dwelt upon this subject, I will remark that in "Lieber's Encyclopedia *Americana*," published in 1831, it is stated, that "the native country of the Indian corn remains *still undetermined*." If this be the fact, is it not high time that the question were decided? I believe that there is on record information enough to put it forever at rest; and mine has been the task to collect and collate it. It is not meet that a nation, who (to use the words of Col. Taylor,) have lived "*in it*," and almost "*upon it*," for upwards of two hundred years should be unable to tell their children whether the Indian corn is a native or exotic plant. It is a reflection upon, not only the learned, but the mass of the community, that their great *staple commodity*—the plant that demands and receives the patronage, the skill, and the industry of a large agricultural part, of a great agricultural nation, should be so imperfectly known. It is no longer to be tolerated that a crop—which has not been too strongly described, as the *meal*, *medow*, and *manure* of the American farmer, should be treated with such neglect, that in a scientific work, published in our own days, and in our own country, it should be represented as "*an unknown*," whose native country is undetermined.

I have therefore taken extraordinary pains to ascertain its history, and after I have given the details, it will be found very easy to pronounce, to what portion of the globe the rest of the world are indebted for the Indian Corn.

I propose to divide this part of the subject into the following heads of inquiry.

1. Has the Indian corn been mentioned by any Greek or Roman writer?

2. Has any traveller, *prior to the discovery of America*, noticed the culture of Indian corn in any other part of the world?

3. If it is not a native of America, whence was it derived and *when* transplanted?

4. Was it known to and used by the aboriginal inhabitants of the West India Islands, and of South and North America before, or at the time of, their being, first visited by Europeans?

5. What is the general opinion of learned persons upon its origin?

6. Are there any recent discoveries that will bear upon this subject?

A few words on these questions in their order.

1. Has the Indian corn been mentioned by any Greek or Roman writer?

This point has been conceded by the author of the article quoted from Lieber's Encyclopædia Americana, and in so doing he has done no more than was required of him at the hands of truth and candour. The "corn" which the disciples of our Saviour plucked and eat on the Sabbath, as they went through the corn fields, was not *Indian* corn; for in Luke vi. i. the disciples are represented at *rubbing the ears* in their *hands* to get at the grains, an operation which would have succeeded with wheat and other small grains, but which was altogether inapplicable to Indian corn.

Pliny speaks of a certain dish much used and admired by the ancient Romans called "*alica*," which was made of *Zea*. "*Aliea fit e Zea quem semen appellavimus.*" But "*Zea*" here means "*spelt*," or according to some, "*beer barley*" or "*beer corn*." See Ainsworth's Lat. Dict. which cites Pliny.

2. Has any traveller, *prior to the discovery of America*, noticed the culture of Indian corn in any other part of the world?

It is well known that, previously to the discovery of America, many intelligent travellers visited China, India, and other parts of Asia, as well as Africa; that some of these have been very minute in their descriptions of the vegetable productions of these countries; yet it is not pretended that any one of them has mentioned the cultivation of the Indian corn. This universal silence upon the subject furnishes negative testimony, *at least*, and negative testimony of the strongest character, that the Indian corn was then an unknown plant.

It can hardly be supposed, if the Indian corn had been growing in those countries, that it would have escaped the notice of travellers; and this negative testimony is strengthened by the circumstances, that immediately *after* the expiration of a sufficient length of time from the discovery of America, to have enabled the curious to have transplanted the productions of this hemisphere to other parts of the world, we find intelligent foreign travellers employing their time in describing the Indian corn and its mode of culture. I have among my notes numerous instances of this class, which I forbear to press upon the reader.

3. If the Indian corn is not a native of America, *whence* was it derived and, *when* was it introduced into America?

Is it not a great objection to the proposition that the Indian corn was introduced into America from another part of the world, that no two writers agree *whence* it was originally derived. One asserts that it was brought from India, supposing it to have been introduced through Persia to Africa; another says that it originated on the western coast of Africa, &c. In like manner are these writers at fault, when the *time* when it was introduced into America is required to be known. We will presently see the reasons of this discrepancy as to the *place* from which the Indian corn is supposed to have been brought, and total inability to shew *when* it was transplanted into the Americas. But these reasons will serve for any thing better than to shew that it was not a native of this country.

4. Was the Indian corn known to the aborigines of any portion of this hemisphere, and of those portions in the order in which they were first visited?

Hispaniola was one of the first of the West India Islands known to Europeans: it was discovered in 1492, by the Spaniards, before they had seen the continent; and therefore I shall commence with the Spanish West Indies. That the Indian corn was found in these Islands is proved by the following:

The Spanish word for *Corn*, used as a generic term, and also for "wheat," according to Delphini, is "*trigo*," which is derived from the Latin "*tritium*."\* But the Spaniards use the word "mays," which they define to be "*West India corn*."

Again. In Jos: de Acosti's Natural History of the West Indies, lib. 4. ch. 16, p. 236, speaking of the mays, he calls it "Indian wheat, to make bread of. He says that it was the only grain found in the West Indies by the Europeans: that it grows upon a long reed with large grains, and sometimes two ears on a reed, on one of which seven hundred grains have been told: that they sow it grain by grain and not scattering, as is done with wheat; and it requires a hot and moist soil. There

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\* Which is rendered, "wheat" and "barley."

“are two sorts of it, (says our author,) one large and substantial, the other small and dry, which they call ‘*moroche*.’ The leaves of it and also the reed are very good food for cattle, green; and dry, it serves as well as straw. The grain is better for beasts than barley, but they must drink *before* they eat it; for if they drink *after* it, it swells and gives them pain.— The Indians eat it hot, boiled, and call it ‘*mote*,’ and sometimes toasted. There is a sort of it large and round, which the Spaniards eat toasted; they also grind it and make cakes which they eat hot; and these, in some places, they call ‘*arepas*.’ They also make bread, to keep, and sweet cakes of it. The Indians make drink of it, as done with barley; this they call in Peru ‘*azua*,’ and in most other parts ‘*chica*;’ it is very strong. They have also a way of extracting an *oil* from it which is good, and serves instead of butter and olive oil.’ This writer spent nearly his whole life, which was a long one, in America.

The South American continent was discovered in 1498, and in Robertson’s History of America, speaking of the agriculture of the aborigines of that country, it is said, “The chief thing raised was *maize*, known in Europe by the name of ‘Turkey’ or ‘Indian’ wheat, a grain extremely prolific, of simple culture, agreeable to the taste, and affording a strong healthy nourishment.”

The Mexicans held in great veneration a goddess who presided over the *maize*, whom they called “To-na-cay-ohu-a,” which means “She who feeds us.” To her they consecrated the first fruits of the earth, as the Heathens did to Ceres.

The first account we have of any *French* navigator being on the American coast was in 1504. This nation endeavored to effect the planting of a colony in Canada in 1534, but did not entirely succeed till 1603. M. Charlevoix, who wrote the earliest and most authentic history of Canada, which was then called “*La Nouvelle France*,” in describing the culture of the earth there in 1721, says, “Outre que le grain dont ce peuple font usage, sont des grain d’été, on prétend, que la nature du Terroir de ce pays-ci, ne permet pas d’y rien semer avant l’Hyver. Mais je crois que le veritable raison pourquoi les grains ne pousseroient pas, si en les semoit en automne, c’est qu’ils se gâteroient pendant l’Hyver, ou qu’ils pourriroient à la fonte des neiges. Il se peut faire aussi, et c’est l’opinion de plusieurs, que le froment, qu’on recueille en Canada, quoiqu’originaiement venu de France, ait contracté avec le tems la propriété des grain d’été qui n’ent pas assez de force pour pousser plusieurs fois, come il arrive à ceaux, que nous semons en September & en October.

“ Les feves, (ou plutôt) les féveroles se sement avec le maiz, dont la tige leur sert d'appui: Je crois avoir ouï dire que c'est de nous, que le sauvages ont reçu ce *legume*, dont ils font grand cas & qui ne differe effectivement en rien de nôtre.”

This author is so anxious to assert that it was from the French that the Canadians received the féveroles, and claims nothing of the kind for the maize; the inference is irresistible that the latter was found in this country.

In his 3d v. p. 163, in giving an account of the plants belonging to Canada (“particulière au pays”) he has enumerated “Le maiz ou Bléd de Tourquie.\*”

M. Charlevoix tells us also that in 1564, when M. Laudonnie arrived in Florida, the natives presented him and his party with *Indian corn meal*. “Des farines de maiz.”

When the first effectual settlement was made in Virginia, in 1607, that country from the sea coast to the mountains and between the Potomac and the James Rivers, was occupied by upwards of forty tribes of Indians, of which the most powerful were the Powhatans, the Mannahaocs and Monacans; and we have the authority of Mr. Jefferson for asserting, that when the English first visited them, they found them using the Indian corn. Whether it was of *spontaneous* growth or was by cultivation, is not stated; but most probably (says Mr. J.) it was a *native* of a more southern climate, and was handed along the continent from one nation to another of the savages. [*Notes on Virginia.*]

As has been said before, the French settled in Canada in 1603, and six years afterwards the Dutch possessed themselves of New York. The British colonists did not arrive at New England until the year 1620. At the time above mentioned, these Europeans found five Indian nations, viz. the Mohawks, the Oneydoes, the Oriondagoes, the Cayugas and the Sennekas, joined together by a league and confederacy, possessing an immense district of the American continent, reaching from the Atlantic to the Lakes. The Aridondacks, another tribe, lived in Canada. The “Five Nations” affected to think themselves a superior race to all the rest of mankind;—they called themselves “*Onguehonwe*,” which means “men surpassing all others.” The white men were anxious to be made acquainted with the history of these nations previously to the Europeans coming among them; which having been related by the chiefs, and preserved [*Colden's History of the Five Nations, London 1747,*] will shed some light upon the question under discussion. It commences in this way: “The Aridondacks formerly lived three hundred miles “above Trois Riviere, where now the Utawawas are situated;

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\* Lettre X. written in April, 1721.

“ at that time they employed themselves wholly in hunting, and “ the Five Nations made *planting of corn* their business. By “ these means they became mutually useful to each other by exchanging *corn* for venison. But a war broke out between the “ Five nations and the Aridondacks, in which the former were “ the conquerors. *Soon after this*, (says this tradition,) the “ French arrived at Canada and settled at Quebec.”

Carver, the celebrated English traveller, who traversed upwards of five thousand miles of the interior of North America, tells us that the Ottagamies, the Saukees, and all the eastern nations, were found *growing Indian corn*.

But Dr. Benjamin Smith Barton places the LENNI LENNAPE at the head of the column of North American Indians, and they are generally acknowledged to have been of more ancient establishment in the country than many others.\* Their tradition was, that they were formerly a very powerful people inhabiting the country to a great distance westward and along the sea shore east and south. The great extent to which their language was spoken, gives countenance to this tradition. Besides this the tribes along the Mississippi called the Delawares their “ grand father.” Of all the Indian nations which formerly inhabited this country from Massachusetts to the Mississippi and between the Ohio River and the Canada Lakes, none but the five nations and the Delawares had a right to call a general council. It also appears from an inspection of Indian vocabularies that the language of the Lenni Lennape could be traced beyond the Canadian Lakes, on the North and in the South, among the Pampticoughs, who formerly inhabited North Carolina and Sawaranoo, who lived in Georgia, and even to South America, [Barton] Massachusetts, Connecticut, Monongahela, Alleghany, Muskingum, Savanna, Mississippi, and Missouri, are all derived from the language of the Lenni Lennapes.

Now every thing which these Indians considered as *original* or *native* among them, they distinguished with the word “ Lenni” placed before it; the oak and hickory they called “ Lenni Hittuck,” the original or *native* trees; the chub fish was original and common in all their rivers and brooks; they called it “ *Lennameek*,” the *original* fish: they called themselves the Lenni Lennape, the *original* people; and the *Indian corn* they called “ *Lenchâsquem*,” “ the ORIGINAL GRAIN,” thereby declaring their opinion that it was a *native* of their country.

Peter Kalm, professor of economy in the University of Aobo, in Swedish Finland, and member of the Swedish Royal Academy of Science, travelled in America in 1748 and '49, and in a work which he afterwards published, speaking of the Indians of

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\* The British called them “ the Delawares,” and the French, “ Les Loups.”



North America, he says: "Their food is very different from that of the inhabitants of other parts of the world. Wheat, rye, barley, oats and rice, were quite unknown to them. *Maize*, some kind of beans and melons, made up almost the whole of "Indian gardening."—2 vol. p. 95.

"At first the Swedes settled in New Jersey and Pennsylvania were obliged to buy *maize* of the Indians for sowing and eating."—p. 111.

"The Indians had their little *plantations* of *maize* in many places, before the Swedes came into this country."—p. 114.

"Before the Europeans came to this country, the Indians *planted maize*, beans and gourds."—p. 192.

Peter Kalm was a pupil of Linæus, and a good botanist, and therefore his evidence is very creditable upon this subject. He died in 1778, sixteen years after Linæus published his second, and twenty-five years after he published his first edition of his *Species Plantarum*.

In a work entitled "The British Empire in America, containing the history of the discovery, settlement, progress and state of the British colonies in the continent and islands of America," 2d ed. London 1741. vol. 1. p. 184,—the author says, speaking of New England, "Oats, barley, peas, beans, and all other sorts of advantageous grains, are cultivated and flourish here; but the *Indian corn* is most planted. There was no other corn in this country before the English came hither." I shall here insert the account of it given to the Royal Society, by Mr. Winthrop, who was a member. "The natives called it *Wiachin*, and in some southern parts of America it is known by the name of *maïs* or *maize*. The ear is a span long, composed of eight rows of grain, or more, according to the goodness of the ground; about thirty grains in a row. It is of various colours, as red, white, yellow, blue, olive, greenish, black, speckled, striped, and sometimes in the same field and in the same ear. The stalk grows six or eight feet high; that of New England is not quite so tall as Virginia, and at Canada it is shorter than in New England," &c.

At page 185, he says, "The Indians thrash it as they gather it, and dry it well on mats in the sun, and bury it in holes in the ground, lined with moss or mats, which are their barns."

At page 186, he says, "The Indians boil it until it becomes tender, and eat it with fish or venison, instead of bread: sometimes they bruise it in a mortar and so boil it. The most usual way is to parch it in the ashes, stirring it so artificially as to be very tender without burning. They beat it in a mortar and sift it into a fine meal, which they eat dry or mixed with water. The English mix it into a stiff paste and make bread of it, which they bake all day or at night. The best sort of food which is made of it is called *samp*," &c.

No Indian corn grows wild *now*; but both that and the kidney bean were found among the natives. The Indians have a tradition that the first grain of corn was brought hither by a black-bird, and the first bean by a crow.

In page 327, speaking of Calvert's first establishment in Maryland, the writer says, "The infant colony supplied themselves with Indian corn at Barbadoes, which, at their first arrival they began to use to save their English store of meal and oat meal. The Indian women perceiving that the servants of the English did not know how to dress it, made their bread for them, and taught them to do it for themselves. There was Indian corn enough in the country, and these new adventurers soon after shipped off ten thousand bushels for New England to purchase salt fish and other provisions."

In page 428, speaking of the mode of living in Virginia, he says, "The bread which the better sort of people use, is generally made of wheat, the poorer eat *pone*,\* made of *oppon*e, or Indian meal."

At page 441, speaking of the productions of Virginia, he says, "The Indians had pease, beans and potatoes, before the English came among them; but the staff of their food was *their corn*, of which we have given a large description in the history of New England."

What are the inferences to be fairly adduced from this body of concurring testimony? It must be recollected that it emanates from many persons of different habits and propensities, and belonging to different nations, civilized and savage; among whom there could have existed no connivance or collusion: it has been made public at different periods of time, and under various circumstances; and relates to different parts of a widely extended territory, and it is therefore not obnoxious to the objection of having been an ancient error originally fallen into by accident, and unintentionally adhered to and copied by subsequent writers. Standing as it does upon independent ground, each piece of testimony corroborates and strengthens the others; and the whole taken together, establishes in a way that defies refutation that the Indian corn claims this hemisphere for the place of its nativity. Many of the articles to which I have referred, representing the Indian corn to be a plant new in Europe, were published at a time when such an error could not have escaped detection. The discovery of a new world was the great lion or wonder of that day: the accounts given by travellers of an immense country which had been until that period not only unknown, but which many of the learned supposed did not, and could

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\* This name is still preserved in the South, where a "pone of bread" means of *Indian corn* bread.

not exist;—of its singular inhabitants, and of its various animal and vegetable productions, was sought for and read with avidity by princes and subjects, by scholars and laymen, and although the Indian Corn was every where asserted to be a native of the Americas and to be unknown in the rest of the world, yet not a solitary individual was found to correct the error if it was one, or throw the slightest discredit on the assertion. This task was reserved for more modern times, and will not again, I hope, find credence with any who seeks only for the truth. As to the objection that no one has stated that he has seen the Indian Corn growing wild and spontaneously in America, I cannot perceive that there is much weight in it, especially as no one pretends to have seen it growing wild or spontaneously in any other part of the world. By the Indians it was doubtless found growing wild, but at the time that this country was visited by Europeans it was every where cultivated. I am informed by a gentleman residing in the state of Kentucky that there was some thirty or forty years since a tradition among the western Indians that the seeds of the plants they cultivated were presented by the Great Spirit: that on a certain occasion the Great Spirit had descended to this earth in the form of a beautiful squaw: that where she first touched the ground with her feet there sprang up the Indian Corn; where she placed her right hand grew the bean, and where she put her left hand pumpkins and squashes, and where she seated herself on the ground grew tobacco.

In the United States this plant has always gone by the name of *Indian Corn*, (except where *par excellence* it is designated by the name of "Corn,"\*) and there is no doubt but that this name was given to it by the earliest visitors, whom, history tells us, called this country "the West Indies."

Indian names for many preparations of Indian Corn have descended to us: "samp" in the North, and "hommony" in the South, are names for a dish composed of corn coarsely broken and boiled like rice. "Sagamenté," is the whole grain with the hull taken off and boiled in like manner. "Sack-a-tash," among the northern aborigines was the name of a dish composed of unripe corn and beans boiled together.

Is not the manner in which the *Zea* is described by the early botanical writers evidence that the *Zea mays* was then unknown, and that it has since been admitted into its class and order? The Stem is ranged under the *Culm*, which originally meant a *hollow stem-like straw*.

In describing the female flowers, the conical process upon which

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\* In one of the Counties of Pennsylvania a man was indicted for stealing so many bushels of "Corn," and upon the exception being taken by Counsel that this was not a perfect description of Indian Corn, it was over-ruled by the Court.

the seeds are set, is, (for want of an appropriate term,) called a *spike*, whereas a spike is an inflorescence, in which the flowers are sessile, (sitting down,) placed immediately on the *main stem*, without the foot-stalk, like the mullen. This description answers well enough for the *male*, but not at all for the *female* flowers of the Indian corn, which are not placed on the stem at all, but upon a conical process set upon the same.

The covering of this conical process and the seed had no terms among these early botanists by which it could be described. It was ranged under the part "Calyx," or cup of the flower, but comes naturally under no definition of that part that I have ever seen in a botanical work.

In fact, so little are the classes and orders fitted for the reception of this plant, that one botanical writer (Mrs. Lincoln,) after arranging it under the 19th class monœcia, and order Triandria, mentions it again under the order Dignia; (the grasses.) "This plant," (she says, p. 126,) "botanically called *Zea Mays*, although of the natural family of the grasses, having a culm-like stalk, and other distinguishing characteristics of grass-like plants, is yet placed in the class monœcia."

##### 5. What is the general opinion of the learned?

In the first volume of the *Encyclopedia of Geography*, by Murray, p. 175, is the following:

"In the west of Europe, maize has the same range of climate as the vine, but reaches further north, on the east side. In its *native American* soil, it forms the chief article of food, from the River La Plate to the Lakes of Canada, requiring a short but warm season of four months; it is well suited to the climate of the new world up to the lat. of 45°."

In 1748, Montesquieu wrote his *Espris des Loix*. In speaking of the soil of America, he says, "The cause of there being so many savage nations in America, is the fertility of the earth, which **SPONTANEOUSLY** produces many fruits capable of furnishing them nourishment. If the women cultivate a spot of land round their cabins, the **MAIZE** grows up presently."

One of the varieties of corn used in the United States still bears the name of the "King Philip Corn," from Philip, king of the Wampanoags, who in 1674 made war with the settlers of Massachusetts.—[See Adams' History of N. England, p. 118.]

See also an essay of Col. Taylor of Virginia on Agriculture; the March number, 1835, of the *Cultivator*, edited by J. Buel, of Albany, N. York; an essay of S. W. Pomeroy, of Brighton, Massachusetts, and published December 19, 1819, in the *Massachusetts Agricultural Repository*; Smith's History of Virginia; and Governor Drayton's View of the Carolinas; in all of which the Indian corn is considered as a native of America.

6. Are there any recent discoveries that will shed any light upon this subject? I have heard of some which I will briefly state. The Messieurs Peales of Philadelphia, always anxious to enrich their museum, a few years since procured from Peru two very interesting collections of Inca mummies. These mummies, consisting of a man, a woman and a child, were dug out of the earth in the desert of Atacama, in the valley of the same name, in the province of Peru and not far from Arica, which is the capital of the above province of South America. This place was a celebrated deposite of the dead bodies of the ancient Incas.

The Peruvians entertained the idea that, after death, they were destined to cross the sea to the west, and hence, when they died in the neighbouring mountains, their bodies were brought down into this valley to be interred. They also believed that they would require some of the good things of this life to support them on their journey to the "undiscovered country," they therefore enclosed with the bodies portions of provisions.

After the mummies in question were brought to Philadelphia, they were unwrapped, and inside of the envelope were found maté, (an herb) mixed with lime, several small bags of *Indian corn meal*, and *one ear of Indian corn*.\*

Now we know, from history, that Pizarro, in order to facilitate the conversion of the natives, in 1555, forbid all interments in Arica, and from that period, this valley has remained a desert, we have therefore the positive proof that at least 382 years ago, (and how much longer we cannot tell,) Indian corn was the food of the Peruvians.

In the 2d part of first volume of the Transactions of the Geological Society of Pennsylvania, page 415, in a letter from J. C. Johnson, M. D. of Louisville, Kentucky, to R. Harlan, M. D. of Philadelphia, dated the 6th of July, 1835, wherein the writer says: "I send you by Mr. Frazer, the FOSILIZED CORN, of which I spoke when I last saw you. It is found in the alluvial bank of the Ohio river, about twenty-five miles below Wheeling, both above and below the mouth of Fish Creek, and extending up the creek some distance, and four or five miles on the Ohio; it may extend farther, but it shows itself only that distance by the wasting of the river against the bank.

"The stratum is generally from eight to ten inches thick, and from five to six feet below the surface, and contains nothing but the *corn* grains closely impacted together with the black dust, which you perceive among the corn, has ever been found with the grains. The same stratum has been met with in places distant from this in digging below the surface. This is all

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\* A cast of this ear is deposited in the Academy of Natural Science of Chester County.

“ that I could learn relative to this interesting and unaccountable deposition. Why or how did the corn get from the cob?

“ It certainly must have been charred, or it would not have been thus preserved. It could not have been reduced to this black cinder, like the loaves of bread and grains of different kinds found at Pompeii; or rather it could not have resulted from a like cause. I do believe, that if all the corn raised on the Ohio, and all its tributaries, above this point was collected in one mass, it would not amount to one-tenth of this deposition.”

If the article alluded to in the above letter is really Indian corn, whether in a fossilized or any other state, it having been found where described, is an unanswerable argument in favor of the position that has been assumed. The fact is that so much does it resemble grains of Indian corn, that there is scarcely an individual to whom it is presented who does not instantly pronounce that it is the *Zea* maize; and yet when we take into consideration the immense quantity that is said to be discovered, all belief in it seems to waver. No idea can be formed of an ancient population of this continent dense enough to have cultivated and stored away such an inexhaustible harvest; and against the supposition of its having been the *spontaneous* production of the earth, the large size of the grain is a powerful argument. There is no doubt but that the maize was a diminutive grain in its natural state. Dr. Darlington is of opinion that it did not much exceed in size the grains of wheat. The grains upon the ear found inside of the envelope of the Peruvian mummy, are quite small; and the corn raised even at the present day in Peru is far from being of a large grain.

If, for the sake of further enquiry, we were to admit that it was corn, it is not correct to call it *fossilized* corn, in the proper sense of that word, unless bearing the obvious and characteristic marks of vegetable organization, it has undergone one of the three following processes, viz: of *intromission* of the *mineral* matter at present composing it, into the interstices and vacuities of the original organized body; or, second, *substitution* of the present *mineral* matter into the spaces which have been produced by the partial removal of the original organic substance; or, third and lastly, by *impregnation* and *consolidation* of the chemically altered organic matter itself. Now it is obvious that in this corn (if corn it is,) there has been no *intromission* nor *substitution* of any mineral matter, but that a chemical change has taken place similar to that which transforms wood into jet; and if therefore it is correct to rank jet among fossils, this may properly enough be denominated fossilized corn.

## II. Where is it now cultivated?

Indian Corn is *now* cultivated extensively not only in America, but throughout a great part of Asia and Africa, and also in several countries of the south of Europe, as in Spain and Italy; and in many of the Provinces of France, it is said to form almost exclusively the sustenance of the inhabitants. [Lieber's Enc. Am. tit. Maize.]

Arthur Young, in his travels through France and Spain, observes, that the regions of Maize exhibited plenty and affluence, compared with those where other crops are cultivated.

In speaking of this grain or gigantic grass, Johnson says, it is propagated in England as a curiosity. But it would appear from a pamphlet published in 1828,\* by Mr. Cobbett, entitled a treatise on Cobbett's Corn, that he attempted to raise it in England, and in Reese's Cyclopaedia, tit. Maize, an account is given of some experiments in raising this grain in Ireland by Richard Buckeley. Other experiments are there also alluded to, made respectively by M. Duhamel and M. Amiens, but the place where they were made is not mentioned.

It is calculated† that in England there are about thirty-four millions of acres of land which are subject to agriculture, but of this, not more than one half is under the plough, the balance being used for pasturage.

Of the seventeen millions ploughed, three millions are in wheat, three millions in oats and beans, and between two and three millions in barley. They raise about three hundred thousand cwt. of hops, and make about four millions of gallons of cider annually.

In Scotland, there are about five millions of acres under regular cultivation, of which not more than one million eight hundred thousand are under grain; of which, one hundred and forty thousand produce wheat. Oats is their staple, and the food of its rural population, which they raise on one million two hundred and sixty thousand acres. Barley occupies two hundred and eighty thousand acres, being raised principally for distillation.

In Ireland they raise wheat and barley, but their main objects are oats and potatoes, of the latter as the staple food of a considerable body of the people.

They raise annually about one million five hundred thousand pounds worth of flax.

In Denmark the chill atmosphere of the climate is less favourable to the cultivation of wheat than barley, rye and oats, all of which afford a large surplus for exportation.

\* I have not been able to get a sight of this pamphlet, but have a specimen of the corn.

† See the Encyclopedia of Geography, title Productive Industry.

In Sweden and Norway they have one million three hundred and sixty-three thousand acres of land under cultivation, but the annual average of grain sown on each farm does not amount to a bushel, and the produce of the whole country does not exceed seventy-one thousand quarters; hence Sweden, until lately, imported grain to a great extent; and such was the scarcity before 1812, that the peasantry often ground the bark, and even the wood of the fir trees into flour. In 1827, Sweden exported thirty-nine thousand, and in 1828, one hundred and sixty-four thousand tons of grain of every description.

There is no country in Europe which produces a greater amount of valuable agricultural productions than Holland and Belgium. But their climate being humid, the principal objects of culture in the Dutch Provinces are connected with pasturage.

From careful enquiries carried on by the government of the Netherlands, the agricultural capital of the country is estimated as follows:

	<i>Hectares.</i>	<i>Francs.</i>
Wheat .....	350,000	154,000,000
Rye.....	700,000	168,000,000
Buckwheat.....	200,000	32,000,000
Barley.....	280,000	84,000,000
Pulse.....	110,000	48,000,000
Potatoes.....	131,000	41,000,000
Oats.....	300,000	84,000,000
Orchards.....	54,000	3,000,000
Vegetables.....	92,000	55,000,000
Hemp and Flax.....	210,000	126,000,000
Madder.....	30,000	21,000,000
Cattle and Animals.....		150,000,000
		<hr/>
		966,000,000

A French hectare is 2.473614 acres English.

France, in regard to internal economy, is one of the richest and most flourishing countries in the world. Grain is raised in sufficient quantities to supply their extensive population with food. Maize is mixed with other grain in the southern departments. The following is an average produce of grain from 1800 to 1812:

	<i>Hectolitre.</i>
Wheat.....	51,500,200
Rye.....	30,200,161
Maize.....	6,302,316
Buckwheat.....	8,409,473
Barley.....	12,576,603
Potatoes.....	19,800,741
Oats.....	32,066,587
	<hr/>
	160,946,081



## Average from 1825 to 1828:

	<i>Hectolitre.</i>
Wheat.....	60,553,000
Other Grains.....	114,733,000
Potatoes and Chesnuts.....	46,238,000
Wine.....	35,500,000

A French hectolitre is 22.009667 gallons English.

The grain produced in Spain is of an admirable quality, yet they do not grow grain enough for their own use; they make regular importations.

The agriculture of this kingdom is remarkable for producing wool, wine and barilla. The entire number of sheep is five millions.

They consume twelve million quarters of grain annually, of which they raise two-thirds.

Portugal though generally fertile, does not produce one-third of the grain necessary to supply its wants. The chief objects of attention are the vine and the olive.

Maize succeeds in Switzerland, 2000 to 2500 feet elevation.—  
[Geog. Dict. vol. 2, p. 58.]

The Missionaries Smith and Dwight, state that they found rich and luxuriant crops of Indian corn growing in Asiatic Turkey.

### III. How much is raised in the United States?

I have not been able to arrive at even an approximation to the amount of Indian Corn raised in the United States, although I have spared no pains to obtain it; a gentleman in Missouri writes to me that "on the meadow lands of Missouri, bordering on the Mississippi River, he saw last summer thousands of acres of Indian Corn in Clark, Lewis and Madison Counties which produced not less than one-hundred bushels to the acre, without any use of the hoe."

A gentleman in Kentucky says, "it is impossible for me to state any thing like the exact quantity of Indian Corn raised in our State; it is a principal grain with us, and it is no uncommon thing for our farmers to plant from one hundred to five hundred acres each year. In regard to the quantity exported from this state, I am not prepared to give any very accurate account, but believe it to be small in proportion to all other exports; my reasons are that it is a heavy article, and we live far inland,\* and our principal attention has been, for many years turned to the raising of stock, and when we reflect upon the vast amount of stock driven from our State to every other part of the United States, it would be wonderful if we should export any considerable amount of grain of any kind. In or-

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\* Spring Valley, Fayette County.

“der to give a fair idea of what is thought to be the ability of this and the adjoining State to export corn, I will mention that I have seen within a few days an advertisement calling for twenty thousand bushels of corn to be delivered at a single point on the Mississippi river, and believe the price has been for some time from one dollar to one dollar and fifty cents the bushel.”

Even in our own State I have been unsuccessful; a gentleman of Chester County writes to me, “I could not venture even to guess at an answer to your ninth question. I can scarcely guess at the quantity exported. I will, however, submit to you the following data for a calculation. Chester County is about fifty miles long, and twenty miles wide. About half the land is under cultivation. About one tenth of the arable is annually planted with Indian Corn. The average product of this, is about forty bushels per acre, or perhaps (taking the whole county,) not more than thirty bushels per acre. It is probable that one third of the whole product is sent to market. Taking thirty bushels as the average crop, these data would make about three hundred and twenty thousand bushels of Indian Corn exported annually from this county. This I think is a low estimate.”

#### IV. The varieties of Indian Corn.

##### *Catalogue and description of the Specimens in Peter A. Browne's Cabinet of Indian Corn.*

##### *A. Yellow Corn.*

*A a.* No. 1. The genuine gourd seed Indian corn, so called from the supposed similitude in shape, between its grains and the seeds of the gourd; the spike contains, when thus unmixed with any other variety, twenty-four rows, which is the highest number of rows on any cob of Indian corn I have ever seen. I have heard of twenty-six rows. When this corn is mixed with any other variety, its spike gradually diminishes in its number of rows until it arrives at the maximum of the variety with which it is mixed. Examples of these mixtures are seen in

No. 2, of twenty-two rows; No. 3, of twenty rows; No. 4, of eighteen rows; No. 5, of sixteen rows; No. 6, of fourteen rows;\* and No. 7, of twelve rows.

*A b.* No. 8. Is the genuine King Philip Indian Corn, so called from the celebrated Indian chief “Philip king of the Wampanoags.” It has eight rows, which is the lowest number of rows on any spike of Indian corn. It is a hardy plant, belonging to a high latitude, the seed was originally obtained from the aborigines of the north.

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\* Called in Maryland the Dutton Corn.

This variety mixes well with the gourd seed, and Nos. 2 to 6 inclusive are the products of these essays. No. 7 is a mixture of Nos. 1, 8, and 22.

*A c.* No. 9. The Sioux or yellow flint Indian corn, with twelve rows. The seed was obtained from the Sioux tribe of Indians, who at the settlement of Canada, inhabited the north, but who are now residents of the west.

No. 10. The Sioux, grown in Pennsylvania. Twelve rows.

No. 11. The Sioux and gourd seed, mixture. Sixteen rows.

*B.* White Indian corn.

*B a.* White flint. *B b.* White flour corn.

*B c.* White Sacharine, or sweet Indian corn.

*B a.* No. 12. Genuine white flint. Twelve rows. Virginia.

No. 13. White flint. Ten rows.

No. 14. Early white flint. Twelve rows.

*B b.* White flour corn.

No. 15. From Peru. Eight rows.

No. 16. Pennsylvania. Eight rows. Called in Maryland, Smith's early white.

No. 17. New Jersey. Eight rows.

No. 18. New York. Ten rows.

*B a.* & *B b.* Mandan Indian corn.

No. 19. A mixture of No. 12 and No. 15. Grown in the Indian village of Mandan.

*B c.* White Sacharine or sugar corn.

No. 20. The early Sacharine, twelve rows, grains shrunken.

*C.* Hæmetite, or blood red Indian corn.

No. 21. Common sized hæmetite, with twelve rows and red cob.

No. 22. The red cob with white grains.

No. 23. The red cob with yellow grains.

No. 24. The red cob with brown grains.

No. 25. The red cob with white gourd seed.

No. 26. The red cob with gourd seed and yellow flint.

No. 27. White cob with red grain.

No. 28. Speckled red and yellow grains on a white cob.

No. 29. The same on a red cob.

No. 30. The dwarf hæmetite, commonly called Guinea corn.

*D.* Blue corn.

No. 31. Blue corn. Ten rows.

*E.* No. 32. The corn of Texas; each grain is enclosed in a pod or husk, and the ear in a husk.

No. 33. Corn found in an envelope of a Mexican mummy. (The cast.)

No. 34. Corn grown near Sheffield, Yorkshire, England, in 1835, from seed raised by Wm. Cobbett.

No. 35. The famous Dutton corn.

A former collection made by me and presented to the Royal Academy of France, (Paris,) contained forty-two varieties.

V. Of the varieties of Indian corn, which kind is preferred for cultivation?

Mr. Taylor says, that in selecting Indian corn regard should be had to three circumstances.

1st. The most stalk.

2d. The largest cob.

3d. Longest grain.

To which I will add, 4th, early growth and quick culture.

Upon the size of the stalk he sets a high value. 1st, because it produces some economy in labor; for one man can gather far more grain, stalk, blade, top, shuck and cob, in the same time when the plant is large than when it is small.

2d. It produces a greater quantity of fertilizing matter to be returned to the soil.

3d. The longest and thickest cob (if the length of the grain is equal) produces the most corn.

4th. Length of the grain (supposing the cob to be equally long and large) decidedly settles the superiority of the farinaceous product.

5th. The earliest corn, and that which comes quickest to maturity, is most esteemed by the horticulturalist, as it commands the best prices for the table, but it is generally dwarfish.

VI. Capability of preservation and retention of power of germination.

That Indian corn, when well dried, will keep for many years and preserve its capability of germination, is stated by most writers upon the subject; but none of them that I have consulted, specify the particular time it may be kept, or set any limit to its re-productive property. The ear or spike of corn found in the envelope of the Mexican mummies will serve to put this question to the test, for Mr. Peale has obligingly consented that the experiment may be tried upon a few grains. The result will be communicated.

To prevent the seeds of corn from germinating, they should be kept *dry*, no seed can germinate without *moisture*.

No germination takes place in pure carbonic acid, hydrogen, or nitrogen gas, or very rarified air, nor do these gases destroy the seed; they merely prevent its development into a plant.

Nor will any germination take place in a temperature below the freezing point of water.

VII. The method of cultivating Indian Corn in the United States.

Col. John Taylor of Caroline County, Virginia, gives us the following account of the method of cultivating Indian Corn in Maryland, Virginia, and North Carolina; [Arator Balt. 1817; p. 101.]

"The rows are never ploughed but in one direction, cross ploughing being wholly abandoned. Their width is five and a half feet. The field being once thrown into the position of ridges and furrows, never requires to be laid off again. The furrow is left as deep as possible, and when the field comes again into tillage, the list or ridge is made upon this furrow, so that there is a regular alternity between ridges and furrows. If the soil is of a friable nature, a large plough drawn by four horses, and cutting a sod about twelve inches wide and eight deep, is run on each side of this old furrow, and raises a ridge in its centre, on which to plant the corn. The old ridge is split by a large trowel-hoe-plough, having a coulter on the point, two mould-boards drawn by four horses, and cutting ten inches deep. If the soil is stiff or tough with turf, then first plough with four horses, ridges or lists on the old water furrow, with four furrows of the same depth and width. On the summit of this ridge or list, a deep and wide furrow is run with a trowel-hoe-plough and two mould boards, in which the corn is planted, and covered between two and three inches deep with the foot. The planting is guided by a string carried across the ridges, with coloured marks at the distance apart intended for the corn. This furrow is a complete weeding of the ridge, previous to planting, which it should barely precede. The corn receives no more ploughing until it is thinned and hand-hoed along the rows, about two feet wide. After this, a deep furrow is run on each side of it, by a large plough, drawn by two horses, with a mould board, causing the earth thrown out of it to meet at the corn, though the furrow is a foot from it. Thenceforth the tillage consists of a streak or furrow, of a mere weeding plough called a "skimmer," cutting with two wings, twenty-four inches, drawn by one horse; and of a central, deep and wide furrow made with a trowel-hoe-plough and two mould boards, drawn by two horses, to be repeated when necessary. The whole to be concluded with a narrow weeding or hand-hoe, along the slip, in the direction of the row, not kept completely clean by the skimmer."

The advantages of this method of cultivating corn with high ridges and deep furrows, Mr. Taylor states [p. 102,] to be, "that the corn is planted immediately over the furrow of the preceding crop, and by completing the reversal of the ridges early in its culture, it grows upon a depth of tilth three or four times exceeding what is attained by planting and cross ploughing in the usual mode. Its roots are never cut in one direction, and this great depth of tilth thus early obtained, by superceding the occasion for deep ploughing in the latter period of its growth, saves them

in the other. The preservation of the roots and their deeper pasture, enables the corn much longer to resist drought. The litter of enclosed grounds, thrown into the deep furrow upon which the corn list is made, is a reservoir of manure, far removed from evaporation; within reach of the roots, which will follow it along the furrow; and calculated for feeding the plant in droughts. The dead earth brought up by the plough from the deep furrow, is deposited on each side of it, without hurting the crop on the ridge, and with the bottom of the furrow remains four years to be fructified by the atmosphere, so as to escape the present loss sometimes accruing from mingling too much dead earth with the soil by deep flat ploughing; and yet to mellow and deepen it more rapidly. And much labor is saved in planting the corn, whether the hoe is used after a string, or the string is carried across furrows previously made on the ridge.

In all lands unable to produce forty bushels of corn to the acre, the proper distance is five and a half feet square, with two or three stalks at each station, except in poor spots, where one will suffice. If it can produce that crop or more, he plants it at the distance of five feet six inches by two feet nine inches, leaving two stalks in sandy and three in stiff lands.

The ridges upon which the corn is to be planted should run north and south, to equalize the benefits and injuries derived from the sun.

In regard to curing the blades, which are called fodder, he observes, [p. 192,] that it must be carefully preserved from the sun, and from rains and dews. If it is shocked, there should be a flue from the side the wind generally blows at that season, and up the centre, to admit of a free circulation of air. The ends of the blades must be laid forward.\*

#### VIII. Is the Indian corn capable of being improved by culture?

Thomas N. Baden, Esq., who resides near Nottingham, Prince George County, Maryland, has demonstrated that the Indian corn can be greatly improved, both in quality and quantity, by cultivation. I will first give you his own words.

NEAR NOTTINGHAM, PRINCE GEORGE'S CO. }  
January 26, 1837. }

SIR :

I received yours of the 14th, making enquiry respecting the "Maryland corn," which you understood I had raised. I have the pleasure to say, that I have brought this corn to its high state of perfec-

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\* The Indians of our country had an opinion that the best time for planting Indian corn, was when the leaves of the white oak (*Quercus alba*) first made their appearance; or, according to their expression, are of the size of a squirrel's ears.—[Mrs. Lincoln's Bot.]

tion, by carefully selecting the best seed in the field for a long course of years, having especial reference to those stalks which produced the most ears. When the corn was husked, I then made a re-selection, taking only that which appeared sound and fully ripe, having a regard to the deepest and best color, as well as to the size of the cob. In the spring, before shelling the corn, I examined it again, and selected that which was the best in all respects. In shelling the corn, I omitted to take the irregular kernels at both the large and small ends. I have carefully followed this mode of selecting seed corn for *twenty-two or twenty-three* years, and still continue to do so. When I first commenced, it was with a common kind of corn, for there was none other in this part of the country. If any other person undertook the same experiment, I did not hear of it; I do not believe others ever exercised the patience to bring the experiment to the present state of perfection. At first, I was troubled to find stalks with even *two good ears* on them, perhaps one good ear and one small one, or one good ear and a "nubbin." It was several years before I could discover much benefit resulting from my efforts; however, at length the quality and quantity began to improve, and the improvement was then very rapid. At present, I do not pretend to lay up any seed without it comes from stalks which bear four, five, or six ears. I have seen stalks bearing eight ears. One of my neighbors informed me that he had a single stalk with *ten perfect ears on it*, and that he intended to send the same to the museum at Baltimore. In addition to the number of ears, and of course the great increase in quantity unshelled, it may be mentioned, that it yields much more than common corn when shelled. Some gentlemen, in whom I have full confidence, informed me they shelled a barrel (ten bushels of ears) of my kind of corn, which measured a little more than six bushels. The common kind of corn will measure about five bushels only. I believe I raise *double, or nearly so*, to what I could with *any other corn I have ever seen*. I generally plant the corn about the first of May, and place the hills five feet apart each way, and have two stalks in a hill. I can supply you with all the seed you may need, and I suppose I have now in my corn house fifty, and perhaps more stalks, with the corn on them as it grew in the field, and none with less than *four*, and some *six or seven* ears on them. I will with pleasure send you some of these stalks, and also some seed corn, if I can get an opportunity.

Early last spring I let George Law, Esq., of Baltimore city, have some of this seed corn: he sent it to his friend in Illinois, with instructions how to manage it. A few weeks since, he informed me that the increase was *one hundred and twenty bushels on an acre*; that there was no corn in Illinois like it, and that it produced more fodder than any other kind. I have supplied many friends with seed corn, but some of them have planted it with other corn, and will, I fear, find it degenerate.

I have lately been enquired of if this corn is not *later* than other kinds? It is rather *earlier*; certainly *not* later. Corn planted in moist or wet soils, will not ripen so quick as that which is planted on a dry soil. In the former, there will be found more dampness in the

cob, although the kernel may appear equally ripe in both. In the two last years, the wet seasons have injured much corn that was too early "lofted," or housed.

I believe I have answered most of your enquiries. I hope I have not exaggerated—I have no motive for doing so. I raise but little corn to sell, as tobacco is my principal crop. Should I fail to send you some seed this spring, I will next summer gather some stalks with the corn, fodder, and tassels, as they grow, and send to you, that you may judge yourself of the superiority of this over the common kind of corn.

Yours, &c.

THOS. N. BADEN.

In order to form a proper estimate of the exceeding utility of adopting the plan of Mr. Baden, let us take a case—for instance, the fine county of Chester in Pennsylvania, to which we had reference before when speaking of the quantity of Indian corn raised in the United States. If instead of thirty bushels to an acre, (which was stated to be the average crop), Chester county could produce one hundred and twenty bushels to the acre, her annual produce in this article alone, would be fourfold; and instead of exporting three hundred and twenty thousand bushels, the farmers of Chester county would send to market one million two hundred and twenty-eight thousand bushels annually!

And if Chester county, in point of soil and agriculturalists, is a fair sample of our state, and in the other counties there could be a similar increase, there is scarcely a possibility of calculating the immense advantages that might thus be derived from the careful cultivation of this single plant!

But the calculation does not stop here: if Mr. Baden's *principles* be correct, they apply to all other grains as well as they do to Indian corn, which might by care and attention be made to double, treble, and quadruple their present crops! Is it not worth while to try the experiment upon other grains? And will not the intelligent farmers of our country follow up the experiment of Mr. Baden upon our favorite plant?\*

#### IX. Its cultivation compared with other grains.

Mr. Taylor asserts that Indian Corn produces more food for man, beast, and the earth, than any other farinaceous plant.

That Indian Corn in a proper climate for it, produces more farinaceous matter to the acre than wheat, he proves as follows: "The highest product of Indian Corn in the United States is one hundred bushels to the acre, whereas the highest product of wheat is sixty bushels per acre. Fifty bushels of corn to the acre is invariably produced by land well manured, and well cultivated; whereas half that crop of wheat is extremely rare, and in districts

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\* See Appendix, Note B.



where the average crop of wheat is five bushels, that of Corn is fifteen bushels to the acre."

Mr. Taylor also contends that Indian Corn is the least impoverishing crop. The corn stalks infinitely exceeds wheat straw in bulk, weight, and capacity for making food for the earth, and English farmers consider wheat straw as their most abundant resource for manure. But to the stalks of Corn must be added the blades, tops, shucks, and cobs, each of which will nearly balance the litter bestowed on the land by wheat. He further contends that the quality of the sustenance thus returned to the earth by Indian Corn is of a better quality than that of wheat, and that it incurs less risk of loss by evaporation; Wheat straw he says he has known to lose two-thirds of its first weight. The shucks and cobs of Corn lose nothing by evaporation. The rind preserves the stalk and the top from the operation of the atmosphere, which upon the blades has only the effect it has upon grass, turning them into hay.

X. The different uses to which the Indian Corn can be applied, also recommend its cultivation to the agriculturist.

1. The *stalk* contains a large portion of saccharine matter. Attempts have been made in France to extract this matter for the purpose of making sugar; but the modes hitherto used have not been crowned with success, owing to the expensiveness of the process.

According to Humboldt this manufacture is carried on with complete success in Mexico.

The *stalk*, *top* and *leaves* are used for fodder for cattle, when dried, and sometimes the whole plant is used for the same purpose in a green state. When this is intended, it is sowed broad cast and cut before it goes to seed.\*

The *ashes* of the *stalk* contains a large proportion of alkali.

2. Of the *husks* a very beautiful paper is made in Italy.

3. The *cob* may be ground, and with or without the grain, used to fatten cattle. An oil is also extracted from the cob.

4. The *grain* is used as food for man and cattle.

It also yields oil:—"The oil of Indian corn is used in Cincinnati as a substitute for sperm or whale oil. It is said to produce an equal quantity of light, to be quite as transparent and free from disagreeable odour, in addition to which, it is not subject to freezing, having resisted the greatest cold during the present season—say 6° below zero. The yield of oil is said to be half a gallon to the bushel, without destroying the qualities of the grain for distillation."—*Penn. Inq.*

5. It also yields *spirit*. My Kentucky correspondent informs me that he has known four gallons of high proof spirit to be dis-

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\* See Appendix, Note C.

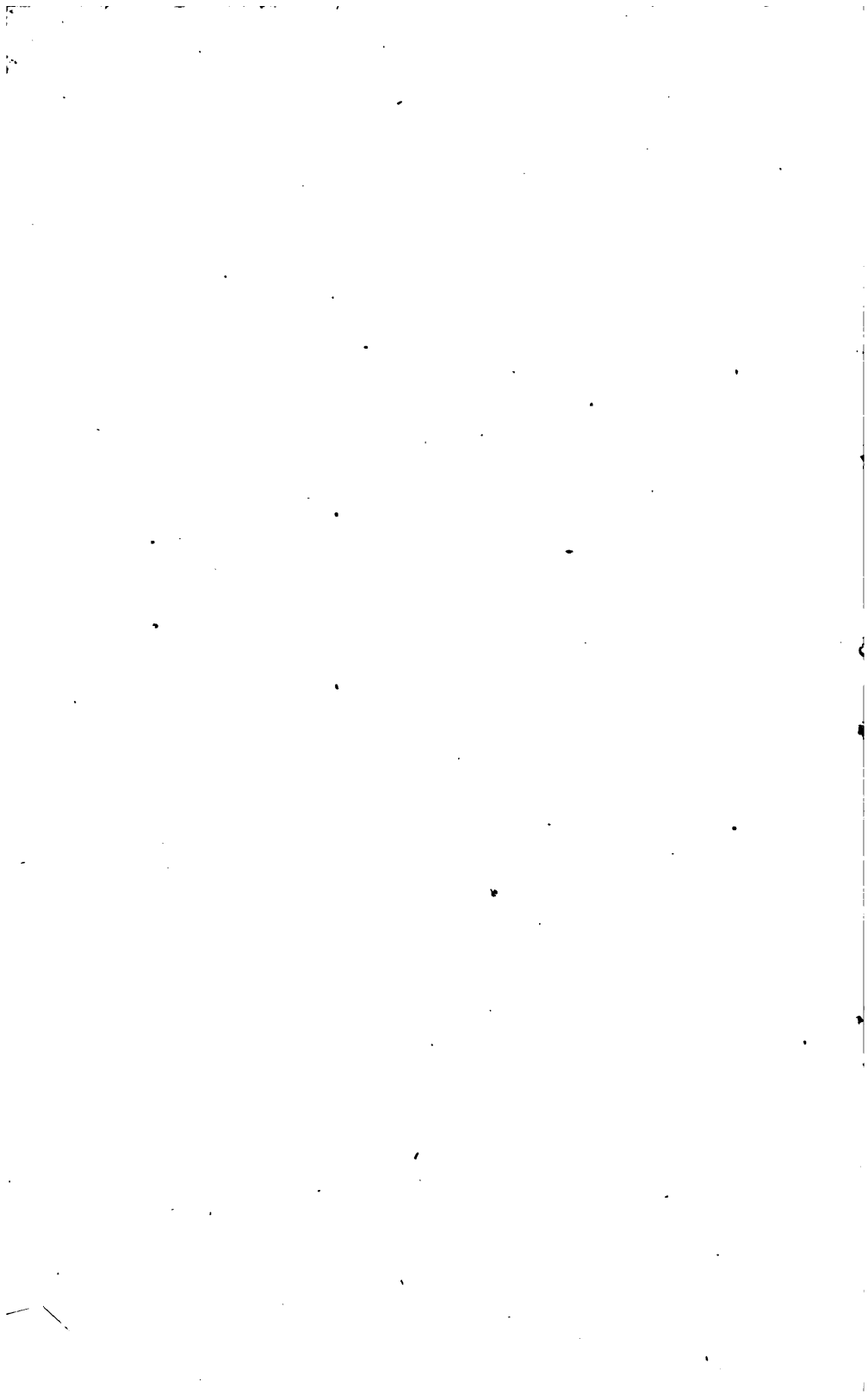
tilled from a single bushel of Corn, of the yellow variety, spangled with red; the seed of which came from Hunterdon County, New Jersey.

The late Peter Miner, of Albemarle county, Virginia, made some experiments, of which the following have been communicated: He had ten bushels of meal of the *corn* and *cob* ground together, weighing three hundred and sixty-seven pounds, and ten bushels of *pure corn meal*, subjected to the process of distillation; and the result was, eighteen gallons of spirit from the latter, and thirteen from the former. Now if the corn cobs had been destitute of all value, the product of the former, estimating the quantity of pure corn meal at five bushels, (which is the general rule, to allow one half in the bulk to the cobs,) ought to have been nine gallons only; but thirteen having been obtained, four of them must have been extracted from the cobs.

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REFERENCE TO THE PLATE.

- No. 1.*—*A representation of the ear of Indian Corn found inside the envelope of the Peruvian Mummy; referred to in page 16.*
- No. 2.*—*The Fossilized Indian Corn described in page 16.*
- No. 3.*—*The Corn of Texas,—E, No. 32, page 22.*



## APPENDIX.

### NOTE A.

1. Z. MAYS, L. *Leaves Lanceolate, keeled, entire.* Willd. Sp. 4. p. 200.  
Vulgo—Corn. Indian Corn. Maize.

Root annual. Culm 6 to 8 or 10 feet high, and an inch to an inch and half in diameter, simple, (often producing suckers, or branches, at base), nodose, semiterete, or with a broad channel on one side, smooth, solid with pith. Leaves lanceolate, acuminate, nerved, keeled, 2 to 3 feet long, and 2 to 4 or 5 inches wide, smooth beneath, pubescent on the upper surface, ciliate on the margin; sheaths striate, smooth, conspicuously pubescent along the margin; ligule short, obtuse, slightly pubescent and ciliate. Staminate Flowers in terminal paniculate racemes. Spikelets somewhat unilateral on the branches, mostly in pairs, one sessile and the other pedicellate, each 2-flowered. Glumes herbaceous, nerved, pubescent, the lower one a little longer. Paleæ 2 to each floret, nearly equal, membranaceous, ovate-oblong, obtuse, subdentate and ciliate at apex. Anthers greenish yellow. Scales collateral, cuneate, truncate, fleshy and smooth. Pistillate Flowers in solitary, axillary, sessile spike, (1 to 3 or 4—usually about 2 of these spikes, or Ears—on each plant). Spikes enveloped in spathe-like convolute sheaths,—the outer or lowest of these sheaths (being the one next the culm) thin and membranous, with two keels. Spikelets 2-flowered, arranged in longitudinal series on a cylindrical spadix, or receptacle, 6 to 12 inches long,—the series or rows, always in pairs: florets sessile, the lower one abortive. Glumes 2; the lower one rather shorter, very broad, deeply emarginate, or somewhat 2-lobed, ciliate, the upper one suborbicular. Abortive floret with 2 paleæ; the lower one orbicular, embracing the fertile floret, the upper one shorter, with the margins inflexed. Fertile floret with 2 or 3 paleæ; the lower one suborbicular, the upper one very broad (or sometimes 2). Ovary smooth, obovoid, obtuse or rounded, compressed at base. Style very long, filiform, projecting beyond the sheaths, pendulous, often purple: Stigma pubescent, bifid. Seed compressed, orbicular reniform, or cuneate, often indented at apex, sitting transversely on the cylindrical or conic receptacle, and partially imbedded in sockets formed by the persistent glumes and paleæ.

Hab. Cultivated fields: common. Fl. July—August. Fr. Sept.—October.

Obs. There are several Varieties of this plant,—with the seeds yellow, white, or sometimes dark purple; and one which is smaller, and comes sooner to maturity. I have also seen a singular variety, in which every seed on the receptacle appeared to have its own husk, or spathe-like covering, in addition to the general envelope. The Indian Corn is one of the most interesting of the Gramineæ—rivaling the Sugar Cane, and the Rice, in intrinsic value,—and, in this region at least, ranking next in importance to Wheat itself. It is universally cultivated here, being generally the first in the routine of the crops, in breaking up the Lay, or sod. The seed is planted early in May. No other species of the genus is known in the United States.—[DARLINGTON.]

### NOTE B.

The rows of grain found upon the cob in the spike or ear of corn, are always even. They are from eight to twenty-four. An anecdote is told of a negro slave belonging to Virginia, who, being at work shelling corn, enquired of his master, if there were no ears of corn that had odd rows. His master gave for an-

swer, that if he would bring him an ear of corn with an odd row he would give him his freedom. The negro made no remark; but a year or two afterwards, he reminded his master of his promise, and produced an ear that had nine rows. The Virginia gentleman regarded the ear with astonishment—counted it several times before he could believe the testimony of his own eyes; at length he demanded of the negro how it had come to pass. If I tell massa, said the fellow, he will not give me my freedom. Upon being assured that he should have his freedom at all events, he confessed that he had, in the earliest state of its growth, unclosed the husk, and cut out a row, after which he closed it up again, and it presented, when ripe, the unnatural appearance of a spike of corn with an odd row. He had, it appeared by his own confession, been trying this experiment upon many plants before he could succeed. His master gave him his freedom, but kept the odd ear of corn a great many years, to shew to his acquaintances, to whom he was fond of relating the anecdote.

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#### NOTE C.

Another story is told in Virginia, but I will not vouch for its accuracy. It is a common practice on the plantations to give the slave a little spot of ground, which he is allowed to cultivate for his own profit. On one of these patches an old negro had planted Indian corn, for what is called "roasting ears," and as he tended it with great care, it was in the most flourishing condition, and promised an abundant harvest. It was the pride of his heart—the object of his thoughts by day, and of his dreams by night. He had already in his own mind calculated the profits it would yield, and had determined upon some of the fine things he would purchase with its proceeds. It so happened, however, that just about the time that the female flowers were ready to receive the fructifying properties of the male ones, the owner of the little corn field had an unfortunate quarrel with an old crone whose lodge was in the neighborhood of his favorite little spot. His antagonist was noted for having the free use of her tongue, and on this occasion was more eloquent than she was wont. After venting upon the man all the maledictions she could recollect or invent, proceeded to curse his favorite patch of corn, and in the most solemn manner declared, that it should not yield him a single ripe ear. Strange to tell, when the time of harvest arrived, the poor slave found that the malicious prophecy was true to the letter,—he had not a single perfect spike to serve him for seed the following year. Among the negroes this circumstance gained the old wench the fame of being a dealer with the devil; and ever afterwards the negroes in all the country round worshipped her through fear, as the Indians do evil spirits. But so much was she shunned, that the grass grew rankly before the door of her hut; and when "Aunt Molly" died at the age of ninety-six, the whole black population of the country considered themselves as relieved from a heavy burthen.

How she effected her purpose she would never disclose; but the owner of the plantation, and indeed all well informed white persons, suspected her of having secretly stripped the plants of all the male flowers before the female ones were impregnated.

The point of this story will readily be perceived by the intelligent agriculturalist, viz: that if they wish to cultivate Indian corn for *fodder alone*, or for making sugar, they can deprive it of the power of growing to ear, and make it throw all the juices into the stalks and leaves.



